

## (54) SEMICONDUCTOR OPTICAL AMPLIFIER

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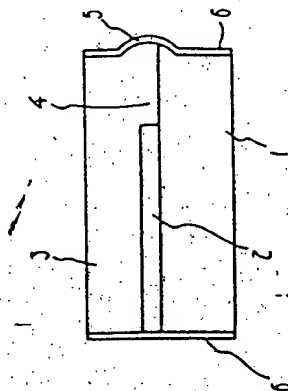
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(71) NEC CORP (72) MITSUHIRO KITAMURA

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**PURPOSE:** To facilitates optical coupling with an optical fiber, to reduce its coupling loss and to improve a net gain by forming at least one end face of an element in a window structure, largely reducing an effective reflexivity and simultaneously forming the end face side of the window structure in a lens state.

**CONSTITUTION:** After an active layer 2, a clad layer 3, etc., are grown on an InP substrate 1, a normal burying growing step including forming of a mesa stripe is conducted, and the mesa stripe is so formed that the active layer 2 to become an active waveguide is disconnected on the way. Thus, the clad layer (or buried layer) of the region having no mesa stripe becomes a window region 4. After a process such as formation of electrodes is executed, a bar for TWA is cut, patterned to a part opposed to the active layer, of the end face in contact with the window region by using a projecting type exposure unit, and a lens state is formed by chemically etching to form a lens end face 5. Thus, high performance having a large net gain and small gain variation amount can be realized.



6: antireflection film

## LEGENDE zu den Bibliographiedaten

(54) Titel der Patentanmeldung

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(71) Anmelder

(72) Erfinder

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